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GB 2217208 A

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UK CL (Edition K) A5R REY  
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(54) Standing frame

(57) A standing frame has a framework (19) mounted on a base (10) and carrying a trunk support (23) and a lower limb support (24) which are at an angle to one another. The base also carries adjustable foot positioning plates 32. The parts of the standing frame can be adjusted so that a child positioned therein is supported in a position with his legs substantially vertical with ankles, knees and hips slightly flexed and his trunk leaning slightly forward.

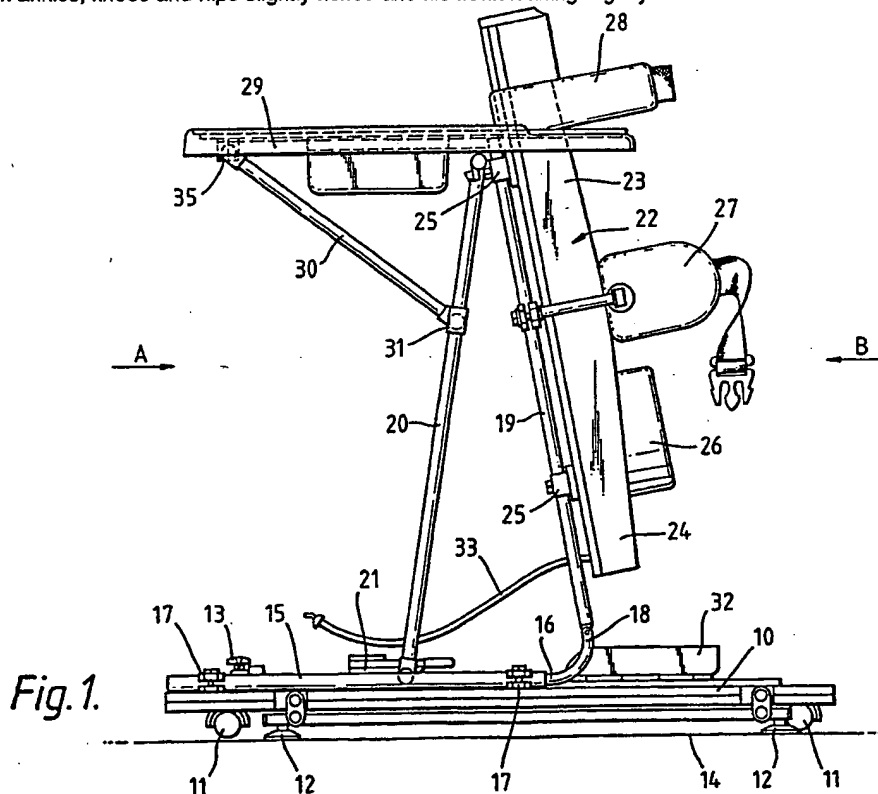


Fig.1.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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*Fig. 1.*

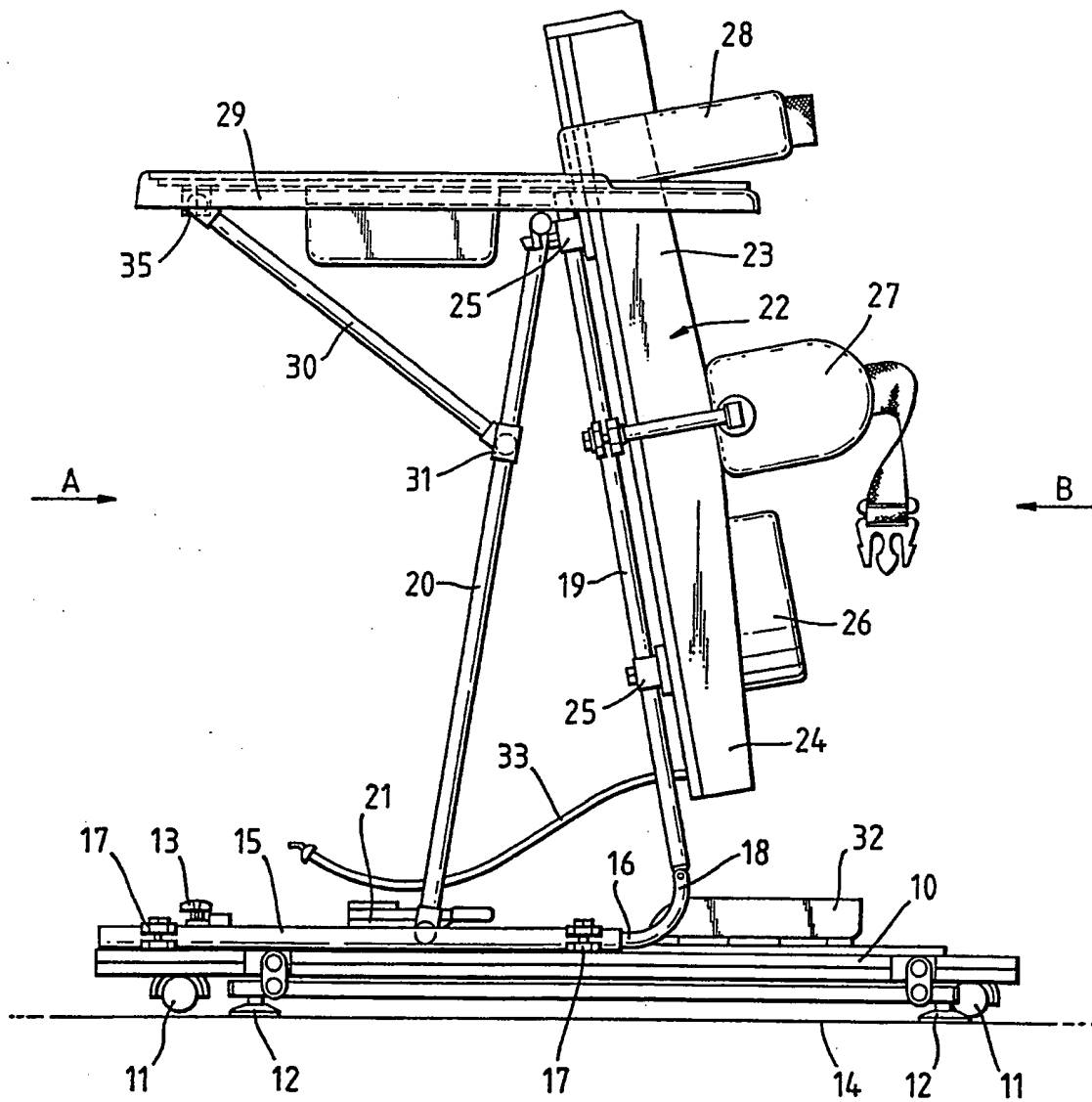
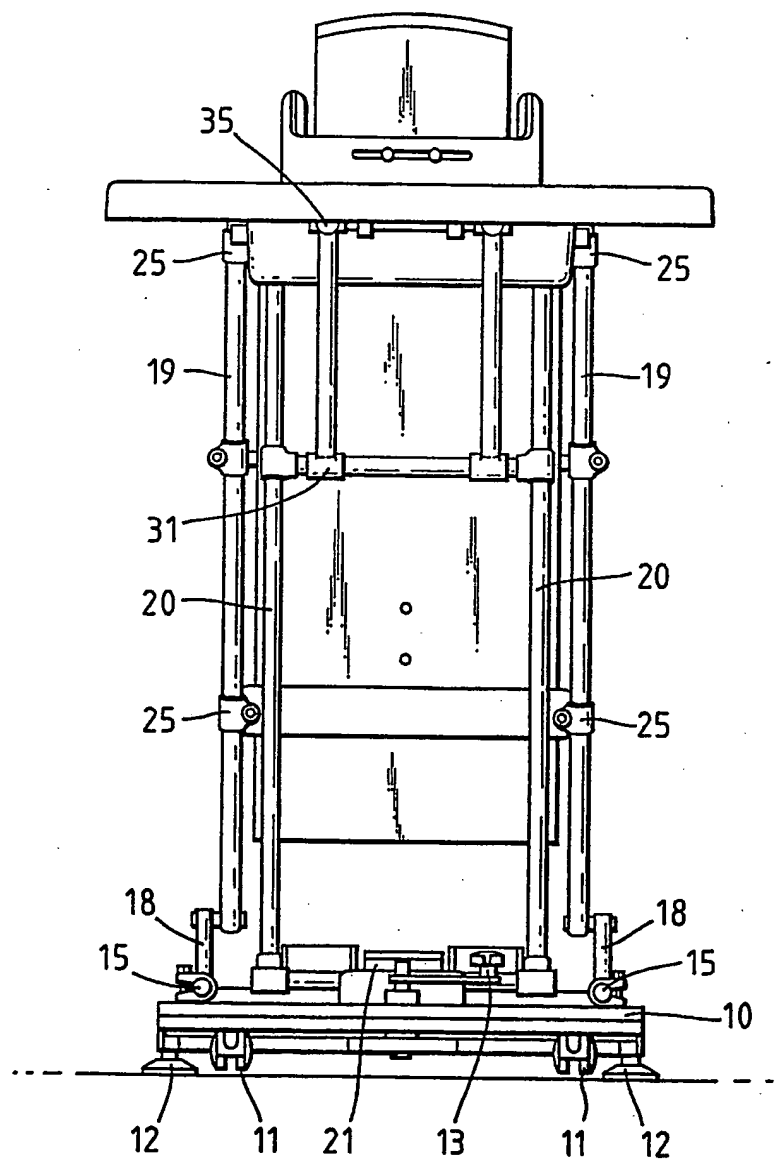
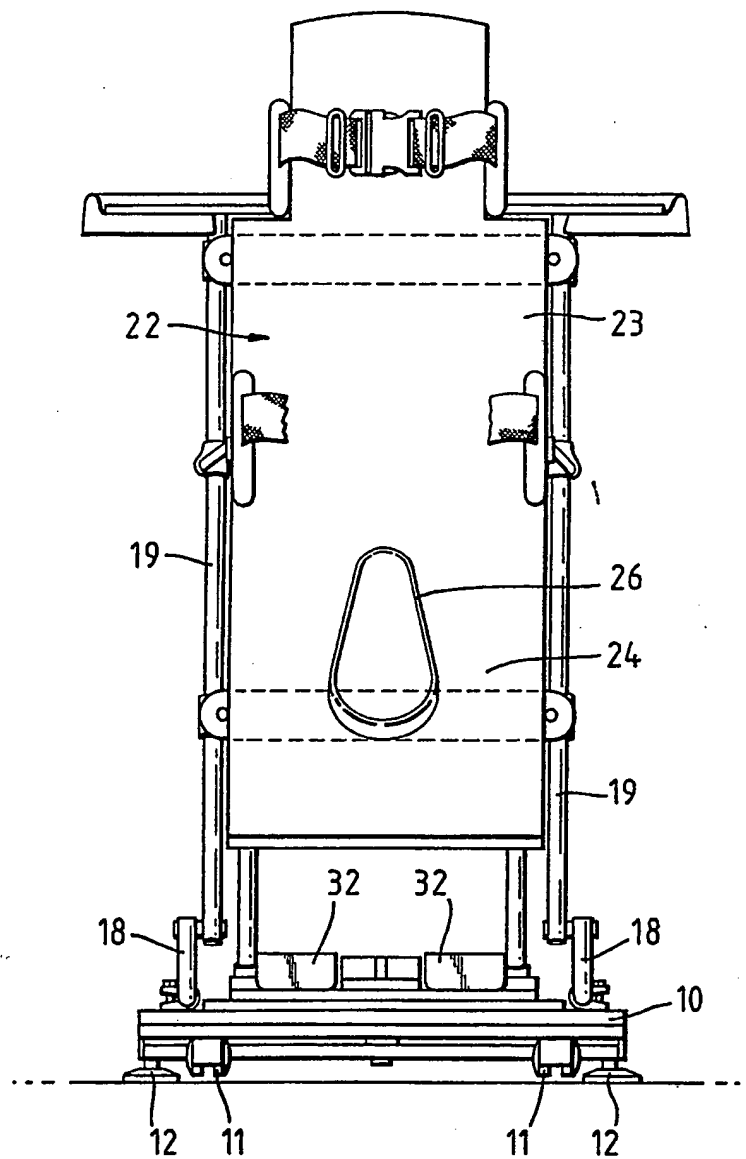


Fig.2.



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*Fig. 3.*



STANDING FRAME

The present invention relates to standing frames of the type used by people, particularly children, who have a motor disability, such as cerebral palsy, and who require assistance to adopt the upright posture and also to learn to develop standing ability.

5 It is important that children with a motor disability are prevented from developing deformities and are encouraged through treatment and the designs of equipment to progress through the developmental milestones and thus achieve their maximum potential. Apparatus, such as standing frames, have therefore been developed to  
10 provide the postural assistance required for them to adopt the upright posture. Usually a tray is fitted as a work surface or the standing frame is positioned close to a table.

Presently available standing frames have been found to have disadvantages. Those described as prone standing frames which hold the  
15 child leaning forward with a straight body do not provide the appropriate attitude for body weight transfer through the feet which is required for development of ability nor do they provide the control required to prevent progression of deformity. Those frames which hold the child more erect do not provide adequate control for the more  
20 severely disabled to facilitate improvements in standing ability nor is the control adequate to prevent progression of deformity.

There is, therefore, a requirement for an improved type of standing frame.

According to the present invention a standing frame includes a  
25 base, a framework mounted on the base, the framework carrying a trunk support and a lower limb support, the trunk and lower limb supports being angled relative to one another, and a pair of foot positioning plates adjustably mounted on the base.

The framework is preferably mounted on the base in such a way  
30 that it can be moved between a folded position and a finely adjustable functional position in which the lower limb support is substantially vertical and the trunk support is adapted to support a trunk in a slightly forward leaning position. The trunk and lower limb supports are preferably formed together as a single unit and are  
35 preferably movable on the frame.

The base is preferably mounted on wheels and carries feet which

can be moved between a standing position where they rest on a standing surface with the wheels clear of the surface and a movable position where the wheels contact the surface and the feet are clear. Movement of the feet is preferably effected by a cam action.

There is preferably an abduction pommel, which may be adjustable, attached to the lower limb support. The frame also preferably carries a tray, which is ideally positioned to prop height - that is, at a height at which a child may use his arms to support his trunk - and lateral trunk and pelvis restraints which may be, for example, adjustable and may incorporate straps.

One embodiment of the invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, of which,

Fig 1. is an elevation of a standing frame,

Fig 2. is an end view, in the direction of A on Fig 1, and

Fig 3. is an end view in the direction of B in Fig 1.

A standing frame has a base 10 mounted alternatively on wheels 11 or feet 12 which are movable by cam means 13 between a standing position (as shown) where they rest upon the surface 14 or a moving position where the wheels 11 rest on the surface. Secured to the base 10 are two cylindrical members 15 in which are telescopically contained support rods 16 lockable by locking means 17. Where the support rods 16, in an erect position of the standing frame, project from the cylindrical members 15 they bend upwards as illustrated at 18, and at their extremities carry pivotably mounted frame members 19 which at top ends thereof are supported by rotatably attached stay members 20 which are supported on the base member 10 to which they may be releasable locked by locking means 21. The position relative to the base member 10 at which the locking means 21 can be locked can be adjusted to control the angle of frame members 19.

Mounted on the frame members 19 is a combined support member 22 which combines a trunk support 23 and a lower limb support 24, the supports 23, 24 being angled relative to one another. Combined support member 22 is so attached to the frame members 19 that its position relative thereto can be adjusted, releasable locking means 25 being provided to lock the combined support member 22 in a required position. Mounted on the lower limb support 24 is an abduction pommel

26 whose position relative to the lower limb support 24 is preferably adjustable (by means not shown).

Secured to the frame members 19 are releasable pelvis 27 and trunk 28 lateral restraints in the form of adjustable pads with straps attached. Also rotatably mounted on the frame members 19 is a tray 29 supported by a strut 30 adjustably pivoted at pivot 31 to stay 20, and lockable to the tray 29 by releasable lock means 35.

Adjustably mounted on, and lockable to the base 10 are two foot positioning plates 32.

Secured to the back of the lower limb support 24 is an erection 10 cable 33.

In use a child is positioned the standing frame with the frame in the erect position as described above with reference to Figs 1-3. The angle of the frame members 19 and hence the angle of the combined support surface 22 relative to the support rods 16, the position of 15 the combined support member 22 relative to the frame members 19, the position of the abduction pommel 26, the position of the lateral pelvic control 27, the position of the lateral trunk control 28 and the position of the foot positioning plates 32 are all adjusted so that the child is supported in a position where his legs are substantially 20 vertical with ankles, knees and hips slightly flexed, and his trunk leaning slightly forward. The various constituent members of the standing frame are then locked in position, and the straps attached to restraints 27, 28 fastened. Finally the height of the tray 29 is adjusted to "prop height" where the child can both assist shoulder and 25 head control, by the use of his arms with his hands resting on the tray, and use the tray as a work surface.

The child in this position is in the position automatically adopted by a baby learning to stand and it has been found that a child with a motor disability supported in this position, with some free 30 movement of the lower limbs, experiences less discomfort and also is able, whilst standing in the supported position, to make those slight movements associated with the process of learning to stand.

The standing frame may be adapted for movement by operation of the cam mechanism 13 to raise the feet 12 and position the wheels 11 35 on the standing surface 14.

The standing frame is also easily transportable. The straps

attached to restraints 27 and 28 are released to allow the child to be quickly removed, all other adjustments remaining in the correctly locked positions. The lock 17 of the telescopic tube member 16 is released to allow tube 16 to slide the full extent of tube 15 when lock 17 is re-engaged at the other end of tube 15. The stay lock 21 is released to allow stay 20 to be pivoted at its upper end to lie  
5 against and parallel to frame members 19. The whole of the upright assembly can then be folded down so that it lies adjacent to and parallel with the base member 10 in which position the components are quickly held in place by an elastic strap and buckle. The standing frame is then in a convenient configuration for, for example, trans-  
10 portation by car or storage. The erection process is the reverse of the process described above, and the erection cord 33 is used to assist in sliding tube 16 to the full extent of tube 15 with stay 20 locked in place by lock 21.

The various releasable fastenings used in the standing frame are  
15 of a type for which there are many known effective alternatives, common in engineering practice, and are not therefore described in detail herein. It will be realised that there are many variations of the above described device within the scope of the invention. For example, the trunk support 22 and lower limb support 24 may be  
20 separate items which might be, for example, hinged together to allow the angle between them to be varied.



CLAIMS

What is claimed is:

1. A standing frame including a base, a framework mounted on the base, the framework carrying a trunk support and a lower limb support, the trunk and lower limb supports being angled relative to one another, and a pair of foot positioning plates adjustably mounted on the base.
2. A standing frame as claimed in Claim 1 wherein the framework is so mounted on the base that it can be moved between a folded position and a finely adjustable functional position in which the lower limb support is substantially vertical and the trunk support is adapted to support a trunk in a slightly forward leaning position.
3. A standing frame as claimed in Claim 1 or in Claim 2 wherein the trunk and lower limb supports are movable on the frame.
4. A standing frame as claimed in any one of Claims 1 to 3 wherein the angle between the trunk and lower limb supports can be varied.
5. A standing frame as claimed in any one of Claims 1 to 3 wherein the trunk and lower limb supports are formed together as a single unit.
6. A standing frame as claimed in any one of Claims 1 to 5 wherein the base is mounted on wheels and carries feet which can be moved between a standing position where they rest on a standing surface with the wheels clear of the surface and a movable position where the wheels contact the surface and the feet are clear.
7. A standing frame as claimed in Claim 6 wherein movement of the feet is effected by a cam action.
8. A standing frame as claimed in any one of Claims 1 to 7 wherein there is a pommel attached to the lower limb support.

9. A standing frame as claimed in Claim 8 wherein the position of the pommel relative to the lower limb support can be adjusted.
10. A standing frame as claimed in any one of Claims 1 to 8 including a tray.
11. A standing frame as claimed in Claim 10 wherein the position of the tray can be adjusted.
12. A standing frame as claimed in any one of Claims 1 to 11 including a lateral trunk restraint.
13. A standing frame as claimed in Claim 12 wherein the lateral trunk restraint is adjustable.
14. A standing frame as claimed in Claim 13 where the lateral trunk restraint includes straps.
15. A standing frame as claimed in any one of Claims 1 to 14 including a pelvis restraint.
16. A standing frame as claimed in Claim 15 wherein the pelvis restraint is adjustable.
17. A standing frame as claimed in Claim 16 wherein the pelvis restraint includes straps.
18. A standing frame substantially as herein described with reference to Figures 1 to 3 of the accompanying drawings.
19. A standing frame substantially as herein described.

-7-

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number  
9101565.1

**Relevant Technical fields**

- (i) UK CI (Edition K ) A5R REY
- (ii) Int CI (Edition 5 ) A61H 3/00

**Databases (see over)**

- (i) UK Patent Office
- (ii)

**Search Examiner**

MISS E M COLEMAN

**Date of Search**

19 March 1991

**Documents considered relevant following a search in respect of claims**

1-19

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2217208A (MYDDELTON)	1

Category	Identity of document and relevant passages	Relevant to claim(s)

#### Categories of documents

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